NATIONAL ENVIRONMENTAL TESTING, INC.

Indianapolis Division
6964 Hillsdale Ct.
Indianapolis, IN 46250
Tel: (317) 842-4261
Fax: (317) 842-4286

ANALYTICAL REPORT

Mr. Angelo J. Darillo
EMCON
5888 Keystone Crossing
Suite 1329
Indianapolis, IN 46240

12/20/1995

Sample No.: 126752
Job No.: 95.05847
P.O. No.: 41354

Page 2

Sample Description: EFFLUENT
Job Description: AMPHENOL/FRANKLIN, IN

Date Taken: 12/13/1995 Date Received: 12/13/1995

Parameter	Result	Flag	Units	Analyst/ Date of Analysis	Method Number	Method PQL
Cyanide - Prep	Complete			lad / 12/14/1995		Complete
Cyanide, Total	0.005		mg/L	ddm / 12/20/1995	E-335.2	<0.005
Arsenic, diss. (GFAA)	<0.005		mg/L	grf / 12/14/1995	S-7060	<0.005
Cadmium, diss. (ICP)	<0.005		mg/L	dak / 12/14/1995	S-6010	<0.005
Chromium, diss. (ICP)	<0.010		mg/L	dak / 12/14/1995	S-6010	<0.010
Copper, diss. (ICP)	<0.020		mg/L	dak / 12/14/1995	S-6010	<0.020
Lead, diss. (ICP)	<0.080		mg/L	dak / 12/14/1995	S 6010	<0.080
Mercury, diss (CVAA)	<0.0005		mg/L	grf / 12/14/1995	S-7470	<0.0005
Nickel, diss. (ICP)	<0.010		mg/L	dak / 12/14/1995	S 6010	<0.010
Zinc, diss. (ICP)	<0.020		mg/L	dak / 12/14/1995	S-6010	<0.020

NET NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY EMCON
ADDRESS 8888 KEYSTONE CROSSING
PHONE 575-4148 FAX
PROJECT NAME/LOCATION AMPHENOL/ FRANKLIN, IN
PROJECT NUMBER
PROJECT MANAGER Angelo J. Datti/o

REPORT TO: Angelo J. Datti/o.
INVOICE TO: EMCON - SACRAMENTO
P.O. NO.
NET QUOTE NO.

SAMPLED BY
ANGELO J. DATTILO (PRINT NAME) — Angelo J. Datti/o (SIGNATURE)
(PRINT NAME) — (SIGNATURE)

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers: HCl	NaOH	HNO_3	H_2SO_4	OTHER	ANALYSES: RCRA METALS	CN	To assist us in selecting the proper method: Is this work being conducted for regulatory compliance monitoring? Yes ___ No ___ Is this work being conducted for regulatory enforcement action? Yes ___ No ___ Which regulations apply: RCRA ___ NPDES Wastewater ___ UST ___ Drinking Water ___ Other ___ None ___	COMMENTS
12/13	3pm	EFFLUENT	GW	✓			X (-1)	X (-1)			X	X		DISSOLVED METALS

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO NA
VOLATILES FREE OF HEADSPACE? YES / NO NA
TEMPERATURE UPON RECEIPT: CHILLED
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS DATE

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
Angelo J. Datti/o	12/13/93	4:03 AM/PM					Beth Schlarb

METHOD OF SHIPMENT: NET COOLER 4:03pm

REMARKS: METALS = As, Cd, Cr, Cu, Pb, Hg, Ni, Zn. PER ANGELO (As by GFAA)

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

Amphenol Corp. 2032658827 P.11

ALTERNATIVE 3: GROUNDWATER EXTRACTION AND TREATMENT
ESTIMATED CAPITAL COST

Project Name: Amphenol Corp. / Franklin Power Products
Project No.: 07026.08

Cost includes installation of one groundwater extraction well, conversion of one monitoring well to an extraction well, installation of two well pumps, header piping, and electrical supply for a groundwater extraction system. The existing ICM air stripper will be used for the treatment of extracted groundwater.

Assumptions:

(1). All work will be done under Level D protection.
(2). Wells will be flush mount type.
(3). One new extraction well will be installed and one existing monitoring well will be converted to a pumping well.
(4). Extraction well depth will be 20 feet.
(5). Extraction wells will be 2-inch diameter with 5-foot stainless steel screen and stainless steel casing.
(6). ICM air stripper is in place and operational.

SHIPPING FOR THIS PROJECT (%): (cost of shipping equipment to site as a percentage of total equipment cost)	0
ENGINEERING FOR THIS PROJECT (%): (estimate of engineering costs is based on total installed equipment cost)	20
CONSTRUCTION MANAGEMENT FOR THIS PROJECT (%): (estimate of construction management costs is based on total installed equipment cost)	25
CONTINGENCIES FOR THIS PROJECT (%): (based on total installed equipment cost)	20

Unit costs for certain items presented in this estimate taken from 1995 Means and ECHOS Environmental Restoration cost estimating guides. Other costs presented in this estimate are based on vendor quotes or past experience.

Estimated Construction Costs - Alternative 3: Groundwater Extraction and Treatment

ITEM #	WORK ITEM	UNIT	Estimated Quantity	Equip/mtr. Unit Price	Equip/mtr. Extended Price	Labor Unit Price	Labor Extended Price	Total Installed Price
1.	Mobilization/demobilization	LS	1	$430	$430	$825	$825	$1,255
2.	Extraction Well Drilling and Installation							
(1).	Crew Per Diem Expenses	DY	6	$0.00	$0	$95.00	$570	$570
(2).	Mud Drilling (2" diameter borehole)	LF	20	$4.90	$98	$11.60	$232	$330
(3).	Filter Pack	LF	5	$8.50	$43	$1.50	$8	$50
(4).	Concrete Surface Pad	EA	1	$3.50	$4	$1.50	$2	$5
(5).	Grout	LF	15	$1.11	$17	$0.00	$0	$17
(6).	Bentonite Seal	EA	1	$25.00	$25	$6.00	$6	$31
(7).	Drums for Well Cuttings	EA	1	$53.00	$53	$0.00	$0	$53
(8).	Manhole Cover	EA	1	$78.00	$78	$26.82	$27	$105
(9).	Well Casing (2" SS)	LF	15	$19.30	$290	$1.69	$25	$315
(10).	Well Screen (2"SS)	LF	5	$44.32	$222	$1.43	$7	$229
(11).	Move Drill Rig	EA	1	$25.84	$26	$13.40	$13	$39
(12).	Decontamination	EA	1	$10.00	$10	$60.00	$60	$70
(13).	Drum Disposal	EA	1	$0.00	$0	$325.00	$325	$325
3.	Groundwater Header Piping, Lateral Piping, Valves							
(1).	Header Piping (6-inch)	LF	1400	$1.45	$2,030	$5.46	$7,644	$9,674
(2).	Lateral Piping (2-inch, 10 LF each well)	LF	20	$1.30	$26	$5.46	$109	$135
(3).	Trenching/Backfill/Compaction	LF	1400	$0	$0	$5.50	$7,700	$7,700
(4).	Flow Monitoring Stations	EA	2	$100	$200	$20.00	$40	$240
(5).	Isolation Valves	EA	2	$65	$130	$16.56	$33	$163
(6).	Throttling valves	EA	2	$65	$130	$16.56	$33	$163
(7).	Paving Repair	LS	1	$2,000	$2,000	$2,000.00	$2,000	$4,000
4.	Well Pumps and Accessories							
(1).	Well Pumps (5 gpm, 30 psig)	EA	2	$2,000	$4,000	$750	$1,500	$5,500
(2).	Electrical Conduit	LF	1400	$2	$2,800	$6	$8,400	$11,200

(3).	Electrical Cables	LF	11200	$0.20	$2,240	$0.34	$3,808	$6,048
(4).	Electrical Equipment and Terminations	LS	1	$2,000	$2,000	$1,000	$1,000	$3,000
5.	Utilities							
(1).	Electrical Service to Enclosure	LS	1	$500.00	$500	$1,500.00	$1,500	$2,000
	SUBTOTAL:				$17,300		$35,900	$53,200

SUBTOTAL:	$53,200
ENGINEERING:	$10,600
CONSTRUCTION MANAGEMENT:	$13,300
CONTINGENCIES:	$10,600
TOTAL (CAPITAL COSTS):	$87,700

ALTERNATIVE 4: GROUNDWATER SPARGING AND SVE

ESTIMATED CAPITAL COST

Project Name: Amphenol Corp. / Franklin Power Products
Project No.: 07026.08

Cost include installation of air sparging wells, SVE wells, and associated piping and equipment.

Assumptions:

(1). All work will be done under Level D protection.
(2). Wells will be flush mount type.
(3). Twelve air sparging wells will be installed; three SVE wells will be installed.
(4). Total sparging well depth is 26 feet; total SVE well depth is 10 feet.
(5). Sparging wells will be 2-inch diameter with 2-foot stainless steel screen and stainless steel casing.
(6). SVE wells will be 4-inch diameter with 5-foot PVC screen and PVC casing.
(7). No control of SVE vapor emissions is included.
(8). ICM air stripper is in place and operational.

SHIPPING FOR THIS PROJECT (%): (cost of shipping equipment to site as a percentage of total equipment cost)	0
ENGINEERING FOR THIS PROJECT (%): (estimate of engineering costs is based on total installed equipment cost)	20
CONSTRUCTION MANAGEMENT FOR THIS PROJECT (%): (estimate of construction management costs is based on total installed equipment cost)	25
CONTINGENCIES FOR THIS PROJECT (%): (based on total installed equipment cost)	20

Unit costs for certain items presented in this estimate taken from 1995 Means and ECHOS Environmental Restoration cost estimating guides. Other costs presented in this estimate are based on vendor quotes or past experience.

Estimated Construction Costs - Alternative 4: Air Sparging with SVE

ITEM #	WORK ITEM	UNIT	Estimated Quantity	Equip/mtr. Unit Price	Equip/mtr. Extended Price	Labor Unit Price	Labor Extended Price	Total Installed Price
1.	Mobilization/demobilization	LS	1	$430	$430	$825	$825	$1,255
2.	Air Sparging Wells Drilling and Installation							
(1).	Crew Per Diem Expenses	DY	6	$0.00	$0	$95.00	$570	$570
(2).	Mud Drilling (2" diameter borehole)	LF	312	$4.90	$1,529	$11.60	$3,619	$5,148
(3).	Filter Pack	LF	24	$8.50	$204	$1.50	$36	$240
(4).	Concrete Surface Pad	EA	12	$3.50	$42	$1.50	$18	$60
(5).	Grout	LF	288	$1.11	$320	$0.00	$0	$320
(6).	Bentonite Seal	EA	12	$25.00	$300	$6.00	$72	$372
(7).	Drums for Well Cuttings	EA	12	$53.00	$636	$0.00	$0	$636
(8).	Manhole Cover	EA	12	$78.00	$936	$26.82	$322	$1,258
(9).	Well Casing (2" SS)	LF	288	$19.30	$5,558	$1.69	$487	$6,045
(10).	Well Screen (2"SS)	LF	24	$44.32	$1,064	$1.43	$34	$1,098
(11).	Move Drill Rig	EA	12	$25.84	$310	$13.40	$161	$471
(12).	Decontamination	EA	1	$10.00	$10	$60.00	$60	$70
(13).	Drum Disposal	EA	12	$0.00	$0	$325.00	$3,900	$3,900
(3).	SVE Well Drilling and Installation							
(1).	Crew Per Diem Expenses	DY	3	$0.00	$0	$95.00	$285	$285
(2).	Mud Drilling (4" diameter borehole)	LF	30	$6.40	$192	$12.30	$369	$561
(3).	Filter Pack	LF	15	$14.74	$221	$2.15	$32	$253
(4).	Concrete Surface Pad	EA	3	$11.70	$35	$2.80	$8	$44
(5).	Grout	LF	15	$1.67	$25	$0.00	$0	$25
(6).	Bentonite Seal	EA	3	$60.37	$181	$12.07	$36	$217
(7).	Drums for Well Cuttings	EA	3	$53.00	$159	$0.00	$0	$159
(8).	Manhole Cover	EA	3	$105.00	$315	$26.82	$80	$395
(9).	Well Casing (4" PVC)	LF	15	$12.50	$188	$2.15	$32	$220
(10).	Well Screen (4" PVC)	LF	15	$14.50	$218	$2.15	$32	$250
(11).	Move Drill Rig	EA	3	$25.84	$78	$13.40	$40	$118
(12).	Decontamination	EA	1	$10.00	$10	$60.00	$60	$70

(13).	Drum Disposal	EA	3	$0.00	$0	$325.00	$975	$975
(4).	Air Sparging Header Piping, Lateral Piping, Valves							
(1).	Header Piping (6-inch)	LF	1200	$4.08	$4,896	$5.21	$6,252	$11,148
(2).	Lateral Piping (2-inch, 10 LF each well)	LF	120	$1.45	$174	$5.46	$655	$829
(3).	Trenching/Backfill/Compaction	LF	1200	$0	$0	$5.50	$6,600	$6,600
(4).	Flow Monitoring Stations	EA	12	$100	$1,200	$20.00	$240	$1,440
(5).	Isolation Valves	EA	12	$65	$780	$16.56	$199	$979
(6).	Throttling valves	EA	12	$65	$780	$16.56	$199	$979
(5).	Air Sparging Blower and Accessories							
(1).	Blower (250 CFM @ 10 PSIG)	EA	1	$8,400	$8,400	$750	$750	$9,150
(2).	Suction and Discharge Piping (6-inch)	LS	1	$500	$500	$500	$500	$1,000
(3).	Electrical Terminations	LS	1	$200	$200	$500	$500	$700
(6).	Soil Vapor Extraction Header Piping, Lateral Piping, and Valves							
(1).	Header Piping (6-inch)	LF	1200	$4.08	$4,896	$5.21	$6,252	$11,148
(2).	Lateral Piping (2-inch)	LF	30	$1.45	$44	$5.46	$164	$207
(3).	Trenching/Excavation/Backfill	LF	1200	$0	$0	$5.50	$6,600	$6,600
(4).	Flow Monitoring Stations	EA	3	$100	$300	$20.00	$60	$360
(5).	Isolation Valves	EA	3	$65	$195	$16.56	$50	$245
(6).	Throttling valves	EA	3	$65	$195	$16.56	$50	$245
(7).	Soil Vapor Extraction Blower and Accessories							
(1).	Blower (400 CFM @ 60" w.c. vac)	EA	1	$13,200	$13,200	$235	$235	$13,435
(2).	Suction and Discharge Piping (6-inch)	LS	1	$500	$500	$500	$500	$1,000
(3).	Electrical Terminations	LS	1	$200	$200	$500	$500	$700
(8).	Enclosure							
(1).	Wood Sided Storage Garage	SF	80	$20	$1,600	$30	$2,400	$4,000
(2).	8" slab on grade	SF	80	$15.00	$1,200	$30	$1.75	$1,202
(3).	Signage	EA	10	$30.00	$300	$20.00	$200	$500

(9). Utilities

(1).	Electrical Service to Enclosure	LS	1	$500.00	$500	$1,500.00	$1,500	$2,000

SUBTOTAL:	$53,000	$46,500	$99,500

SUBTOTAL:	$99,500
ENGINEERING:	$19,900
CONSTRUCTION MANAGEMENT:	$24,900
CONTINGENCIES:	$19,900
TOTAL (CAPITAL COSTS):	$164,200

ALTERNATIVE 2: MONITORING
ESTIMATED ANNUAL OPERATING COSTS

PROJECT: Amphenol Corp. / Franklin Power Products
PROJECT NUMBER: 07026.08

Costs presented are for semi-annual monitoring of select VOCs in groundwater in Operable Area 3 for the Former Amphenol site. The following assumptions have been made:

(1). 15 monitoring wells, 2 surface water locations amd 3 recovery wells will require sampling.
(2). Sampling will be done on a semi-annual basis for a total of 12 years.
(3). Water samples will be analyzed for TCE, TCA, and PCE only.

	Estimated Annual Cost
I. GROUNDWATER SAMPLING AND ANALYSIS	
A. Sample Collection (16 MH @ $50/MH)	$800
B. Sample Analysis (20 water samples, 3 analytes per sample, $135/sample)	$2,700
C. Assemble and Analyze Data (16 MH @ $80/MH)	$1,280
D. Report Development and Submittal (16 MH @ $80/MH)	$1,280
E. Expenses	
Travel/Mileage	$800
Miscellaneous	$200
	$7,060
Contingencies (20%):	$1,412
Total Estimated Operating Costs:	$8,472

ALTERNATIVE 3: MONITORING; GROUNDWATER EXTRACTION AND TREATMENT
ESTIMATED ANNUAL OPERATING COSTS

PROJECT: Amphenol Corp. / Franklin Power Products
PROJECT NUMBER: 07026.08

Costs presented are for semi-annual monitoring of select VOCs in groundwater in Operable Area 3 for the Former Amphenol site and operation of a groundwater extraction system which uses the interim control air stripper.
The following assumptions have been made:

(1). 30 monitoring wells and two extraction wells will require sampling.
(2). Sampling will be done on a semi-annual basis for a total of 12 years.
(3). Water samples will be analyzed for TCE, TCA, and PCE only.
(4). The groundwater extraction system will operate continuously.
(5). The groundwater extraction system will include two extraction wells.
(6). The existing ICM air stripper is used for treatment of the extracted groundwater.
(7). This cost estimate includes only the incremental cost for adding the extraction wells and processing additional flow through the air stripper and does not include the baseline cost for operating the air stripper as the ICM.

		Estimated Annual Cost
I.	GROUNDWATER SAMPLING AND ANALYSIS	
A.	Sample Collection (16 MH @ $50/MH)	$800
B.	Sample Analysis (10 water samples, 3 analytes per sample, $135/sample)	$1,350
C.	Assemble and Analyze Data (16 MH @ $80/MH)	$1,280
D.	Report Development and Submittal (16 MH @ $80/MH)	$1,280
E.	Expenses	
	Travel/Mileage	$400
	Miscellaneous	$200
II.	GROUNDWATER EXTRACTION AND TREATMENT SYSTEM OPERATIONS	
A.	Electricity Costs (two 1/2 hp pumps @ $0.06/KWH)	$400
B.	System Oversight (2 MH/wk @ $50/hr)	$5,200
C.	General Parts and Maintenance	$1,000
D.	Water Discharge to Sanitary Sewer (10gpm @ $3.20/1,000 gal.)	$16,900
	Estimated Operating Costs:	$28,800
	Contingencies (20%):	$5,760
	Total Estimated Operating Costs:	$34,560

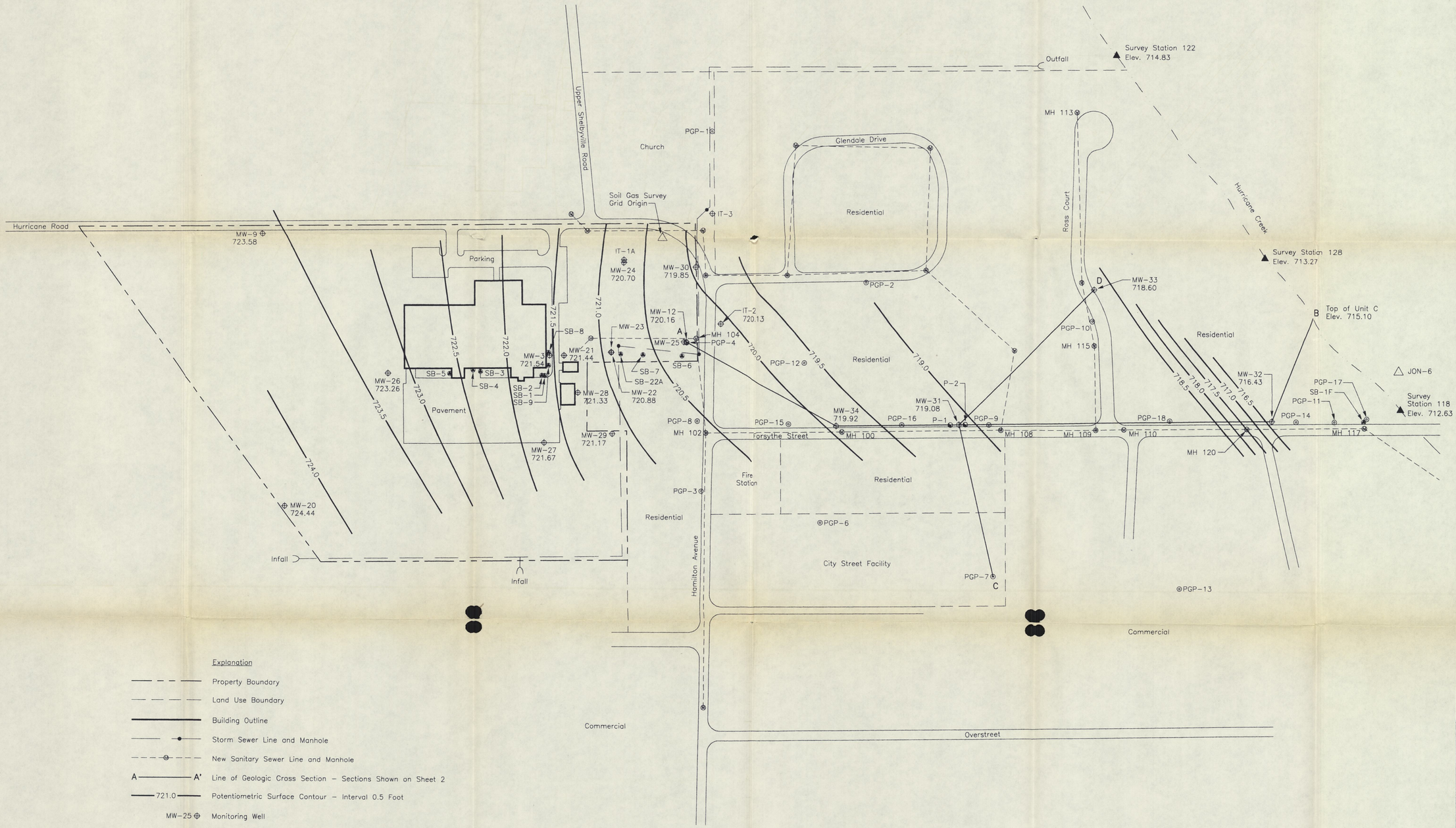
ALTERNATIVE 4: MONITORING; AIR SPARGING WITH SVE
ESTIMATED ANNUAL OPERATING COSTS

PROJECT: Amphenol Corp. / Franklin Power Products
PROJECT NUMBER: 07026.08

Costs presented are for semi-annual monitoring of select VOCs in groundwater in Operable Area 3 for the Former Amphenol site and operation of an air sparging/SVE system.
The following assumptions have been made:

(1). 4 new monitoring wells will require sampling.
(2). Sampling will be done on a semi-annual basis for a total of 12 years.
(3). Water samples will be analyzed for TCE, TCA, and PCE only.
(4). Air sparging/SVE system will operate continuously.
(5). No air monitoring will be required during the air sparging/SVE operation

		Estimated Annual Cost
I.	GROUNDWATER SAMPLING AND ANALYSIS	
A.	Sample Collection (16 MH @ $50/MH)	$800
B.	Sample Analysis (8 water samples, 3 analytes per sample, $135/sample)	$1,080
C.	Assemble and Analyze Data (16 MH @ $80/MH)	$1,280
D.	Report Development and Submittal (16 MH @ $80/MH)	$1,280
E.	Expenses	
	Travel/Mileage	$400
	Miscellaneous	$200
II.	AIR SPARGING AND SVE SYSTEM OPERATIONS	
A.	Electricity Costs (25 hp blower, 20 hp vacuum pump @ $0.06/KWH)	$17,800
B.	System Oversight (4 MH/wk @ $50/hr)	$10,400
C.	General Parts and Maintenance	$3,000
D.	General Performance Monitoring	$2,000
	Estimated Operating Costs:	$38,200
	Contingencies (20%):	$7,640
	Total Estimated Operating Costs:	$45,840



Explanation

- Property Boundary
- Land Use Boundary
- Building Outline
- Storm Sewer Line and Manhole
- New Sanitary Sewer Line and Manhole
- A — A' Line of Geologic Cross Section – Sections Shown on Sheet 2
- 721.0 Potentiometric Surface Contour – Interval 0.5 Foot
- MW-25 Monitoring Well
- 720.16 Ground Water Elevation in Feet MSL on April 8-9, 1996
- PGP-1 Geoprobe Ground Water Sample Point
- SB-1 Soil Boring
- P-1 Piezometer
- Benchmark

Note: All Elevations Noted on this Sheet are 0.76 Foot Lower Than Actual Elevations.

NORTH

0 100 200
Feet

EARTH TECH
5010 Shawnee Mill Road • Bloomington, IN 47408 • (812) 336-0972

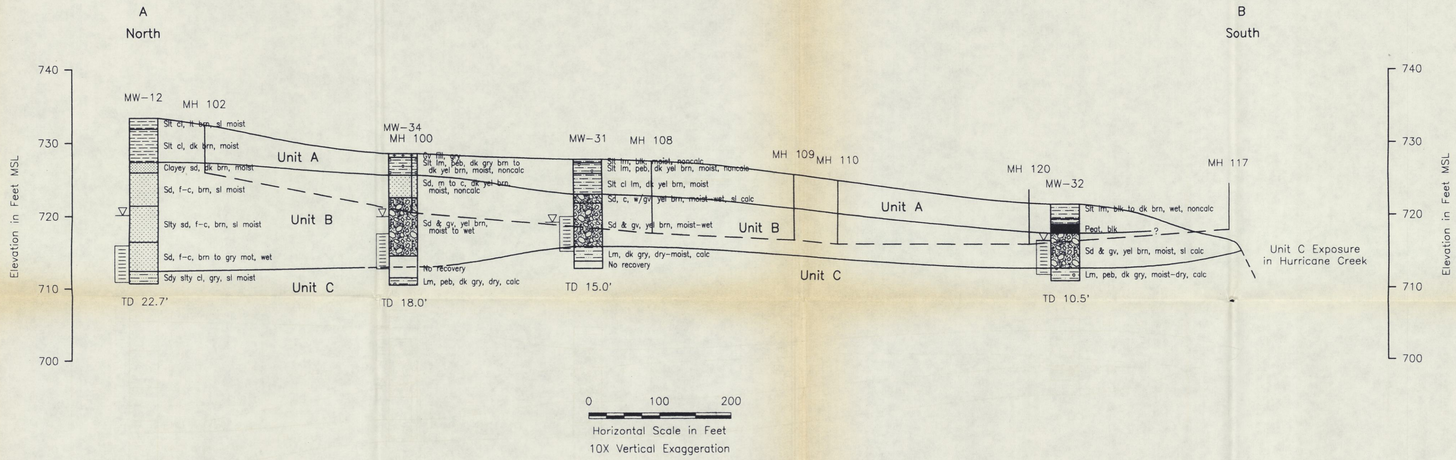
NO.	REVISIONS	BY	DATE

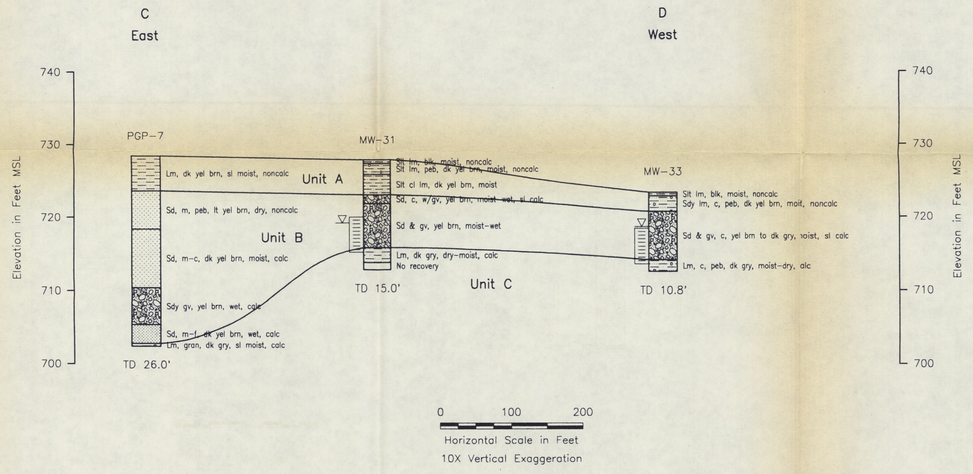
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

CURTIS-FRANKLIN
FRANKLIN, INDIANA
FORMER AMPHENOL CMS

SITE MAP

DESIGNED BY JK	DATE MAY '96
DRAWN BY NW	DATE MAY '96
CHECKED BY	DATE
FILE 702608S1	EDIT NE061496
SCALE	1" = 100'
	DRAWING 1:100
	PLOT
PROJECT	07026.08
	1 SHEET NO.





Explanation

- Well Screen
- Ground Water Elevation on April 8-9, 1996
- MH 110 — Sanitary Sewer Manhole
- Sanitary Sewer Invert
- Lines of Cross Section Shown on Sheet 1

All Elevations on this Sheet are 0.76 Foot Lower than Actual Elevations.

EARTH TECH
5010 Stone Mill Road • Bloomington, IN 47408 • (812) 336-0972

NO.	REVISIONS	BY	DATE

NO.	REVISIONS	BY	DATE

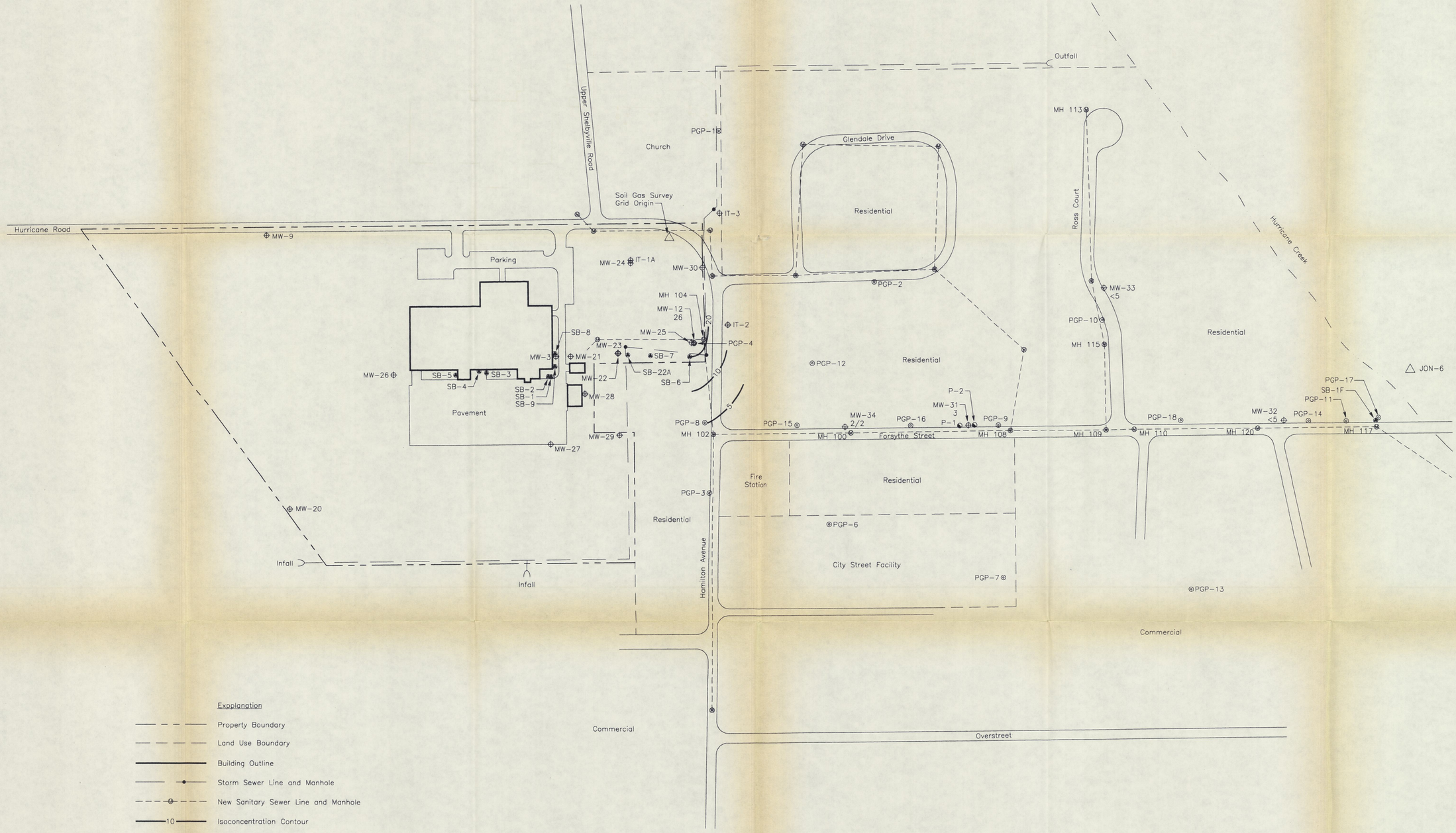
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

CURTIS-FRANKLIN
FRANKLIN, INDIANA
FORMER AMPHENOL CMS

GEOLOGIC CROSS SECTIONS

DESIGNED BY: NW	DATE: MAY '96
DRAWN BY: NW	DATE: MAY '96
CHECKED BY:	DATE:
FILE: 702608S2	EDIT: NW061396
SCALE: AS SHOWN	DRAWING: 1:10
	PLOT:
PROJECT: 07026.08	

2
SHEET NO.



Explanation

- Property Boundary
- Land Use Boundary
- Building Outline
- Storm Sewer Line and Manhole
- New Sanitary Sewer Line and Manhole
- 10 — Isoconcentration Contour
- MW-12 ⊕ Monitoring Well
- 26 DCA Concentration in ug/L
- PGP-1 ◎ Geoprobe Ground Water Sample Point
- SB-1 ✱ Soil Boring
- P-1 ◔ Piezometer
- △ Benchmark

NORTH

0 100 200
Feet

EARTH TECH
5010 Shore Mill Road • Bloomington, IN 47408 • (812) 336-0972

NO.	REVISIONS	BY	DATE

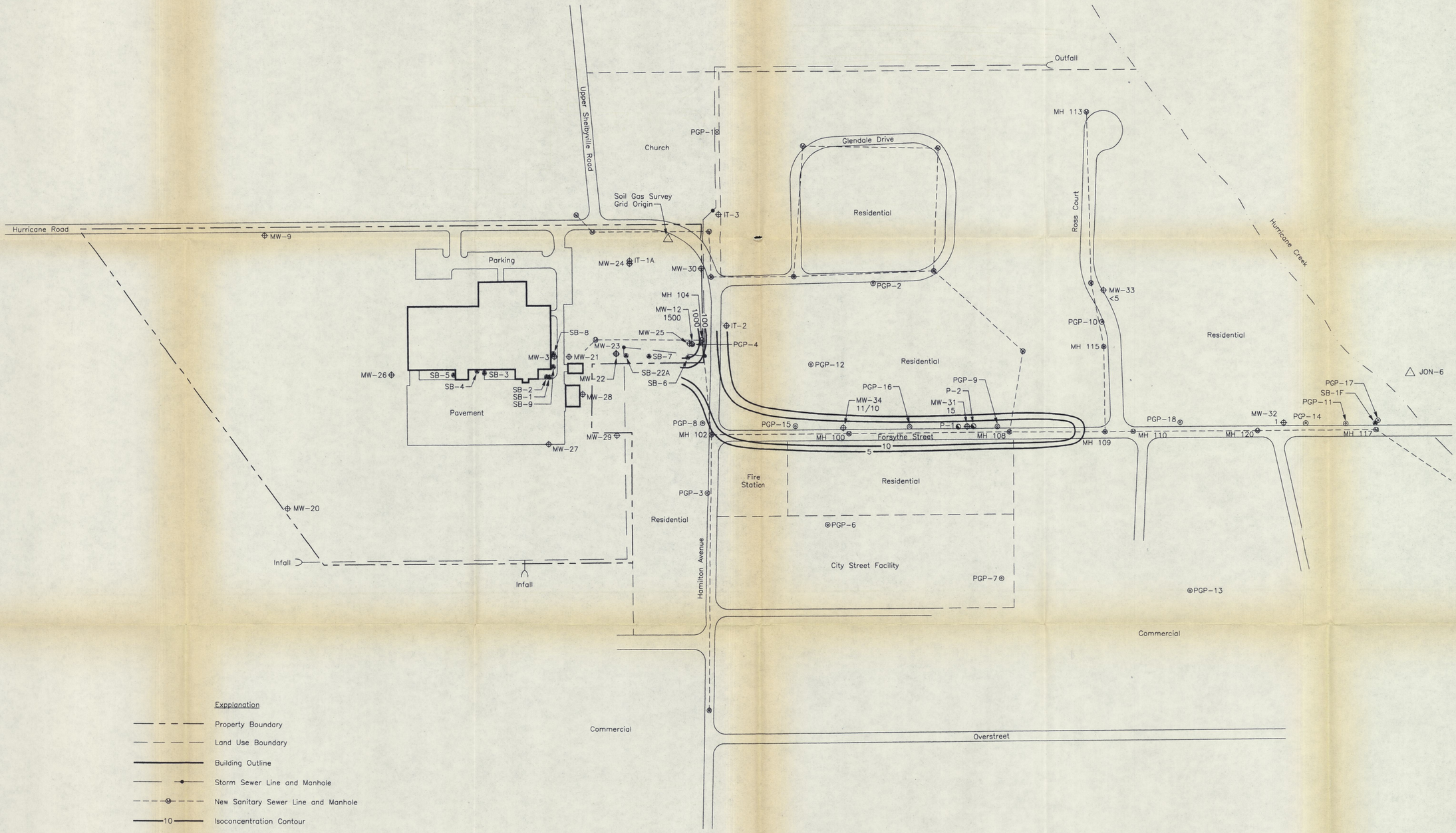
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

CURTIS-FRANKLIN
FRANKLIN, INDIANA
FORMER AMPHENOL CMS

ISOCONCENTRATION MAP OF DCA IN GROUND WATER - OPERABLE AREA 3, APRIL, 1996

DESIGNED BY JK	DATE MAY '96
DRAWN BY NW	DATE MAY '96
CHECKED BY	DATE
FILE 702608JA	EDIT NW061396
SCALE 1" = 100'	
DRAWING 1:100	
PLOT	
PROJECT 07026.08	

3A
SHEET NO.



Expplanation

- Property Boundary
- Land Use Boundary
- Building Outline
- Storm Sewer Line and Manhole
- New Sanitary Sewer Line and Manhole
- 10 — Isoconcentration Contour
- MW-12 — Monitoring Well
- 1500 — PCE Concentration in ug/L
- PGP-1 — Geoprobe Ground Water Sample Point
- SB-1 — Soil Boring
- P-1 — Piezometer
- △ — Benchmark

EARTH TECH
5010 Stone Mill Road • Bloomington, IN 47408 • (812) 336-6972

NO.	REVISIONS	BY	DATE

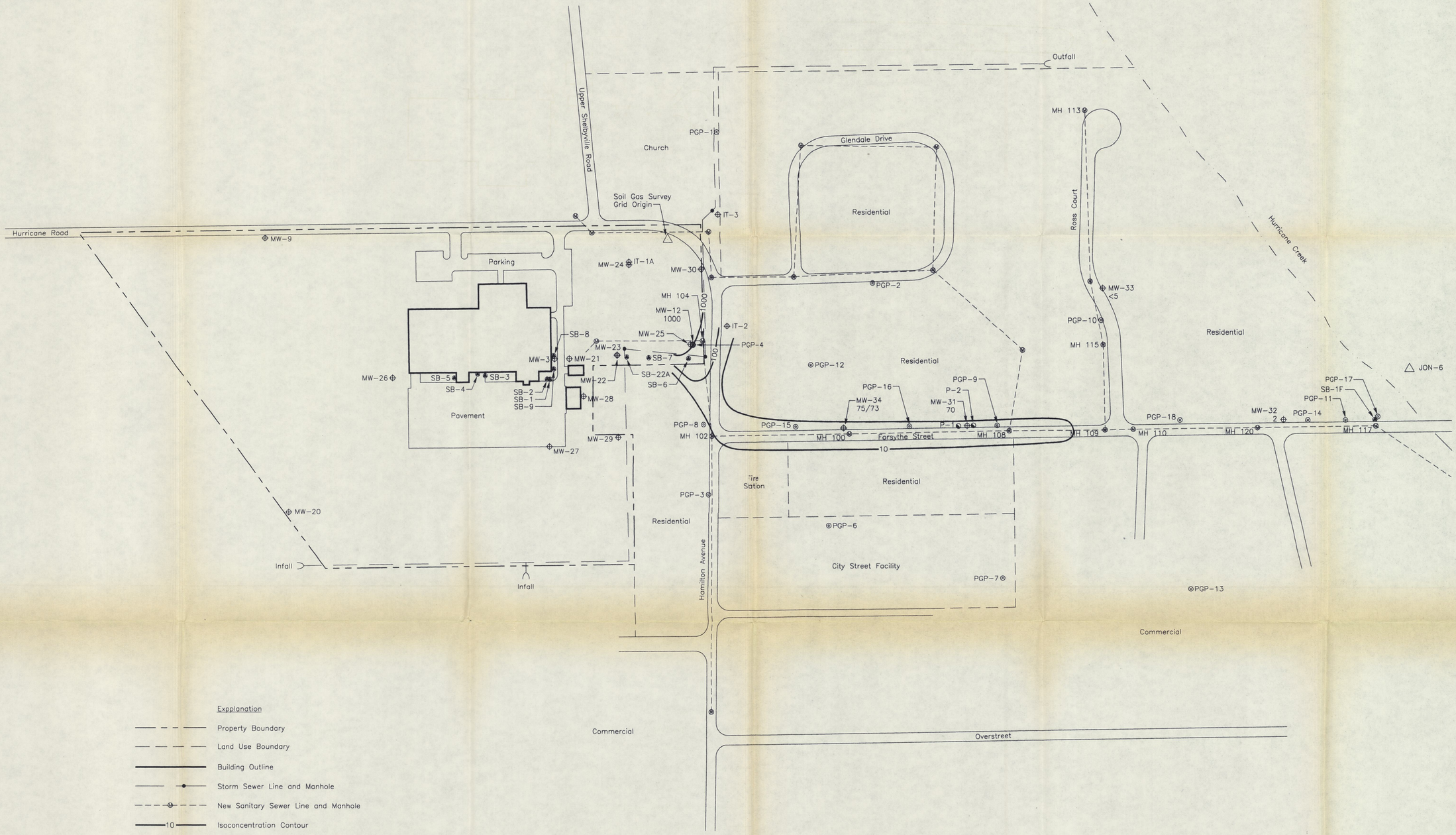
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

CURTIS-FRANKLIN
FRANKLIN, INDIANA
FORMER AMPHENOL CMS

ISOCONCENTRATION MAP OF PCE IN GROUND WATER - OPERABLE AREA 3, APRIL, 1996

DESIGNED BY JK	DATE MAY '96
DRAWN BY NW	DATE MAY '96
CHECKED BY	DATE
FILE 7026083B	EDIT NW061396
SCALE 1"=100'	
DRAWING 1:100	
PLOT	
PROJECT 07026.08	

3B
SHEET NO.



Expplanation

- Property Boundary
- Land Use Boundary
- Building Outline
- Storm Sewer Line and Manhole
- New Sanitary Sewer Line and Manhole
- 10 — Isoconcentration Contour
- MW-12 — Monitoring Well
- 1000 — TCA Concentration in ug/L
- PGP-1 — Geoprobe Ground Water Sample Point
- SB-1 — Soil Boring
- P-1 — Piezometer
- △ — Benchmark

EARTH TECH
5010 Stone Mill Road • Bloomington, IN 47408 • (812) 336-0972

NO.	REVISIONS	BY	DATE

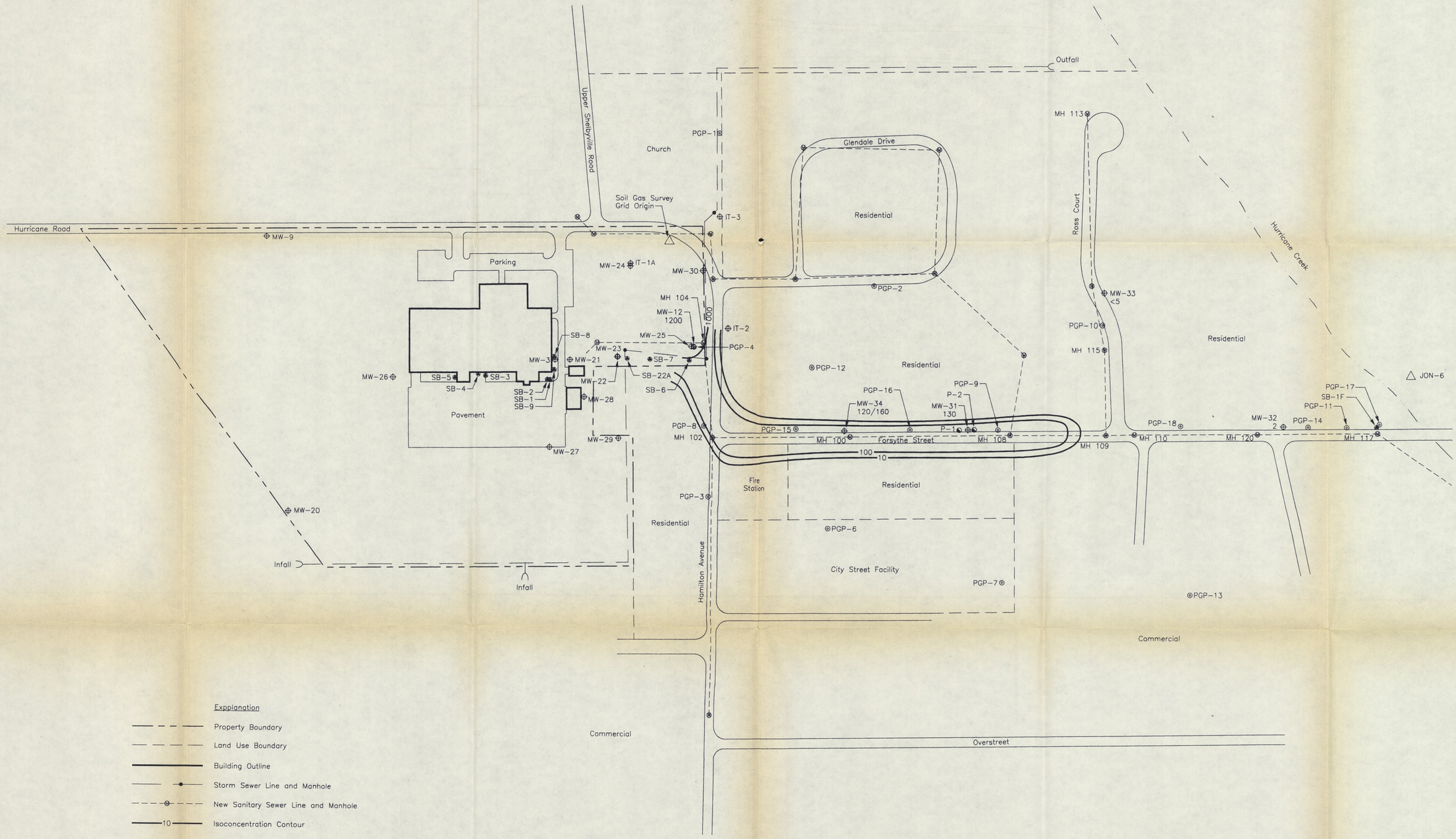
REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

CURTIS-FRANKLIN
FRANKLIN, INDIANA
FORMER AMPHENOL CMS

ISOCONCENTRATION MAP OF TCA IN GROUND WATER - OPERABLE AREA 3, APRIL, 1996

DESIGNED BY JK	DATE MAY '96
DRAWN BY NW	DATE MAY '96
CHECKED BY	DATE
FILE 7026083C	EDIT NW061396
SCALE 1" = 100'	
DRAWING 1:100	
PLOT	
PROJECT 07026.08	

3C
SHEET NO.



Expplanation

- Property Boundary
- Land Use Boundary
- Building Outline
- Storm Sewer Line and Manhole
- New Sanitary Sewer Line and Manhole
- 10 — Isoconcentration Contour
- MW-12 ⊕ Monitoring Well
- 1200 TCE Concentration in ug/L
- PGP-1 ◎ Geoprobe Ground Water Sample Point
- SB-1 ✱ Soil Boring
- P-1 ◉ Piezometer
- △ Benchmark

EARTH TECH
5010 Shawnee Mill Road • Bloomington, IN 47408 • (812) 336-0972

NO.	REVISIONS	BY	DATE

REVISED IN ACCORDANCE WITH CONSTRUCTION RECORDS

CURTIS-FRANKLIN
FRANKLIN, INDIANA
FORMER AMPHENOL CMS

ISOCONCENTRATION MAP OF TCE IN GROUND WATER - OPERABLE AREA 3, APRIL, 1996

DESIGNED BY JK	DATE MAY '96
DRAWN BY NW	DATE MAY '96
CHECKED BY	DATE
FILE 7026083D	EDIT NW061396
SCALE	1" = 100'
DRAWING	1:100
PLOT	
PROJECT	07026.08

3D
SHEET NO.

Report of a Corrective Measures Study for the Former Amphenol Facility Franklin, Indiana

Prepared for:

Amphenol Corporation
358 Hall Avenue
Wallingford, CT 06492

Franklin Power Products
400 Forsythe Street
Franklin, IN 46131

Prepared by:

EARTH TECH
5010 Stone Mill Road
Bloomington, Indiana 47408

September, 1995

07026.08

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

This document presents the results of a Corrective Measures Study (CMS) for the former Amphenol facility located at 980 Hurricane Road, Franklin, Indiana. This report is submitted to U.S. EPA Region V in partial fulfillment of the requirements of a U.S. EPA Administrative Order on Consent (Consent Order), dated November 27, 1990, and directed to respondents Franklin Power Products, Inc., and Amphenol Corporation. Respondents are responsible for conducting a Resource Conservation and Recovery Act Facility Investigation (RFI) and a CMS.

In response to the Consent Order, an RFI was conducted by EARTH TECH (formerly WW Engineering and Science). The report documenting the RFI dated June 13, 1994 was approved by U.S. EPA Region V in a letter dated July 22, 1994. A CMS Work Plan was developed to address site specific contamination identified in the approved RFI report. The work plan was approved by U.S. EPA on November 28, 1994.

The material in the approved RFI report is incorporated into this Corrective Measures Study Report by reference. With the exception of Section 4.0, site features, sampling locations and references cited in this report are located and described in the approved RFI report. Copies of relevant figures, tables, and sheets from the approved RFI report are contained in Appendix A of this CMS report.

2.0 SITE HISTORY

Background information regarding the former Amphenol facility, and a summary of previous investigations are provided in this section.

2.1 LOCATION AND PHYSICAL SETTING

The former Amphenol facility covers an area of about 15 acres. It is located in part of the Northwest Quarter of the Northwest Quarter of Section 13, T.12N., R.4E., on the northeastern side of Franklin, Indiana (Figure 1, Appendix A). The property is bounded on the east by Hurricane Road, on the south by Hamilton Street, on the north by an abandoned rail line, and on the west and northwest by a Farm Bureau Co-Op facility and Arvin Industries, respectively. A Grimmer-Schmidt facility is located east of the site across Hurricane Road. To the south, southeast and southwest, the land use is primarily residential. Approximately 6 acres of the property is used by Franklin Power Products subsidiary companies for manufacturing purposes. The remainder of the property is leased for farming operations or maintained in grass. The site is relatively flat with approximate elevations ranging between 730 and 735 feet above Mean Sea Level (MSL).

The main structure on the site is a 46,000 square foot building formerly used in the manufacture and distribution of electrical components. The building is now occupied by International Fuel Systems, Inc., which manufactures fuel injectors for diesel engines, and Marine Corporation of America, which assembles marine diesel engines. Other buildings include a separate wastewater pretreatment building, now used for engine testing, and a small single-bay garage, used for storage. The area surrounding the main building is either paved parking area, driveway, or grass. The property is unfenced.

Surface drainage from a large area north of the property enters a 72-inch storm sewer at an infall located on the Arvin property immediately adjacent to the northwest corner of the property. The location of this storm sewer is shown on Figure 2 (Appendix A). The storm sewer lies along the western property boundary and receives additional flow from a sewer opening on Farm Bureau property located about 450 feet south of the northwest property corner. At the southwest property corner, the storm sewer turns east. Directly south of the main production building, the sewer turns south again and extends to Hamilton Avenue. At Hamilton Avenue, it again turns and runs east along the south property line. The storm sewer crosses under Hamilton Avenue in the extreme southeast corner of the property, and discharges to Hurricane Creek at a point approximately 1,200 feet southeast of the site. Hurricane Creek has a drainage area of about 15.6 square miles above the storm sewer outfall.

Surface drainage from the northern portion of the property enters a low, wide, natural swale that trends northeast-southwest across the property. This swale appears to be internally drained, and the direction of water flow is unknown. The southeastern portion of the property drains southeast to Hamilton Avenue and Hurricane Road, thence into a storm sewer manhole located in the inside of the roadway where Hamilton Avenue turns north into Hurricane Road.

2.2 PREVIOUS USE OF THE PROPERTY

The main manufacturing building on the site was built in 1961 by Dage Electric, Inc. for the manufacture of electric connectors. The operation was acquired in 1963 by Bendix Corporation for its Bendix Connector Operations plant. Processes included electroplating, machining, assembling and storing manufactured components, and inventorying raw materials and compounds required for production. Electroplating operations occurred in a room in the extreme southwestern portion of the building. From 1961 to 1981, wastewater from plating operations at the facility was discharged directly into a municipal sanitary sewer. The location of this old sanitary sewer is shown on Figure 2 (Appendix A).

In 1981, a wastewater pretreatment system was installed in a separate building for treatment of cyanide and chromium bearing wastewaters from the plating room. New wastewater lines were installed from the plating room to the pretreatment building, and the effluent from the pretreatment plant was routed to a

sanitary sewer manhole just south of the main manufacturing building. In conjunction with the construction of the pretreatment building, a small addition was added to the southwest corner of the manufacturing building, adjacent to the plating room. This addition was evident from examination of historic aerial photographs dated 1976 and 1988. The space was utilized as a RCRA container storage area, and replaced a previous outdoor, fenced, hazardous waste storage area at this same location.

In 1983, the Bendix Corporation was acquired by Allied Corporation and merged with its Amphenol Products Division. As a result of consolidation efforts, manufacturing at the Franklin facility ceased in September, 1983, and the plant was closed at that time. Closure of RCRA units began in February, 1984, and is discussed in detail in Section 2.5.6 of this report.

In 1986, Amphenol Products Division became the Amphenol Corporation, and in 1987 it was sold and become a wholly owned subsidiary of LPL Investment Group, Inc. Amphenol sold the facility to Franklin Power Products, Inc. on June 15, 1989.

2.3 GEOLOGIC SETTING

The area is located within the Tipton Till Plain physiographic unit of Malott (1922) which is generally characterized by low relief topography underlain by thick deposits of glacial drift. The surficial drift deposits are Wisconsinan (Woodfordian) in age and consist primarily of loamy textured diamicts (glacial till) as well as stratified sand and gravel deposits. In many places, older glacial drift deposits of pre-Wisconsinan age have been identified.

Four lithostratigraphic units may be recognized in the upper portion of the glacial drift sequence. Previous soil borings conducted during the period 1984 to 1985 suggest the site is underlain by a thin veneer of weathered glacial till about five to eight feet thick (identified as Unit A in this report) which overlies a sand or silty sand deposit (Unit B) which is saturated in the lower part. The bottom of this sand unit occurs at 712 to 715 feet MSL, or approximately 20 feet below ground surface. The sand overlies a hard, dense till unit 23 to 26 feet in thickness (Unit C), which in turn overlies a second sand unit that is approximately 17 to 20 feet in thickness (Unit D). The bottom of the lower sand unit extends to a depth of about 60 feet below ground surface. Both the lower part of Unit B and Unit D are saturated and yield groundwater.

Deeper drift deposits are known from only one boring (MW-13), but appear to consist primarily of till, with thin stratified units occurring at depths of 114.5, 122 and 172 feet. The lowest "basal sand" unit directly overlies shale bedrock. Bedrock beneath the property is the Devonian-Mississippian aged New Albany Shale (Gray and others, 1987), encountered at a depth of 178.9 feet in boring MW-13.

2.4 HYDROGEOLOGY

Previous water level elevation data from site monitoring wells suggest a fairly uniform north to south groundwater flow gradient within the upper sand and gravel unit. Data gathered by International Technology Corporation (IT) on May 3, 1985 suggest that the 72-inch storm sewer flowing along the south boundary of the property may act at least as a partial intercept for groundwater flow in the saturated portion of Unit B. The water level in well IT-2, located south of the storm sewer, was reported to be over 1.2 feet higher than MW-12 located adjacent to, and north of the sewer. These levels suggest a local reversal of the north to south hydraulic gradient in the storm sewer area.

Hydraulic conductivity of the upper sand unit (Unit B) was estimated by IT from six in situ "slug" tests conducted in the old ATEC Associates (ATEC) monitoring wells (IT, 1985). Calculated values ranged from 3.08×10^{-6} to 9.51×10^{-4} cm/sec. Results may be biased low due to poor well construction, and/or development.

2.5 PREVIOUS INVESTIGATION AND REMEDIAL RESPONSE

2.5.1 HYDROGEOLOGIC INVESTIGATIONS BY ATEC, 1984

A hydrogeologic investigation of the facility was initiated in February, 1984 by Allied Corporation concurrent with plant closure activities, and in anticipation of the sale of the property. The investigation entailed the collection and analysis of soil samples and groundwater samples for volatile and semi-volatile organic compounds, pesticides/PCBs, EP TOX metals and cyanide.

A total of 10 volatile organic compounds (VOCs) were detected in groundwater. Concentrations of tetrachloroethene (PCE) and trichloroethene (TCE) up to several thousand micrograms per liter (ug/l) were detected in wells adjacent to the main facility building, particularly along the southwest corner adjacent to the plating room. The presence of the VOC contamination was confirmed by the analysis of the soil boring and hand auger samples. Lateral groundwater flow direction was determined to be to the south based on water levels from the initial well network. TCE (1,040 ug/l), PCE (611 ug/l) and toluene (5.4 ug/l) were detected in an upgradient monitoring well.

ATEC continued the facility investigation in June, 1984. Twelve additional wells, including a four-well cluster, were installed. These wells were installed to intersect the uppermost sand aquifer as well as deeper units. VOCs, principally PCE, TCE, and 1,1,1-trichloroethane (TCA), were detected at all well locations except A-9 (MW-9 in the approved RFI report). Contamination at upgradient monitoring well A-4 was confirmed, and substantial PCE and TCE concentrations were also found at upgradient locations A-7 (600 and 430 µg/l) and A-8 (835 and 870 µg/l). A VOC concentration of 27,000 ug/l of TCA was found

at well A-12 (MW-12 in the approved RFI report) located along a sanitary sewer downgradient from the facility.

2.5.2 SANITARY SEWER LINE

In July, 1984 ATEC conducted a video camera inspection of the sanitary sewer line leading south from the plant. The sewer was determined to be eight inch vitrified clay tile and was found to have numerous separated joints. Crushed tiles, an offset pipe joint, and an apparent PVC patch were found in an area 157 to 176 feet north of a manhole along Hamilton Avenue. This area corresponds with the location where the 72-inch storm sewer crosses under the sanitary line. Examination of historic aerial photographs suggest that the storm sewer was installed shortly before August, 1976.

2.5.3 PLATING ROOM INVESTIGATION, 1984

In August 1984, ATEC conducted an investigation of soils beneath the plating room floor at the southwestern corner of the facility. Samples were analyzed for VOCs and cyanide. Soils were found to be contaminated with cyanide and certain VOCs, primarily PCE and TCE. Recommendations provided for removal of 15 to 20 cubic yards of soil to a secure landfill.

2.5.4 HYDROGEOLOGIC INVESTIGATIONS BY IT, 1985

Beginning in February 1985, Allied began a second hydrogeologic investigation of the facility utilizing International Technologies Corporation (IT) as a consultant. This study was conducted because of possible deficiencies and inconsistencies in the ATEC investigations, and the need to develop a more comprehensive characterization of groundwater flow, groundwater quality and contaminant transport on and near the property.

Phase I of the IT investigation involved development and sampling of the previously installed ATEC wells, and the collection of several surface water and storm sewer samples. Samples were analyzed for metals, VOCs and total cyanide. A variety of VOCs were detected in all 16 groundwater samples analyzed. However, markedly lower levels of contaminants were detected in upgradient monitoring wells 4, 7 and 8 than were reported by ATEC. IT noted that the greatest levels of contaminants appeared to be concentrated in the area south of the former plating room, and extended at least as far as the storm sewer along the south boundary of the property.

Samples of the storm sewer discharge showed elevated levels of several VOCs, principally TCE, PCE and TCA downstream from the plating room area. A sample from the storm sewer manhole nearest the plating room contained these contaminants at levels comparable to upstream sampling points. The data suggested

that the storm sewer acted as a groundwater intercept, and that contaminated groundwater from the facility was entering the storm drainage system. Most probably this occurred in the area south of the plant where the storm sewer parallels the sanitary sewer for a distance of about 150 feet, and where numerous sewer defects were noted during the July, 1984 video camera inspection (Section 2.3.2 of the approved RFI report).

VOCs were also found in Hurricane Creek at the storm sewer outfall, and at a point downstream in Hurricane Creek. No VOCs were detected in a sample from Hurricane Creek upstream from the storm sewer outfall.

Additional monitoring wells were installed by IT in April, 1985. The purposes of the new well installations were to:

- determine if the storm sewer or pipe-bed acted as an intercept to off-site contaminant migration;
- determine if any contamination existed in the deeper sand units, notwithstanding previous ATEC results which were attributed to poor well construction;
- determine the type and extent of organic contaminants present in the soil adjacent to the plating room, and to determine if they are affecting groundwater quality;
- determine if any contaminants were migrating east or northeast from the facility which could possibly affect the Franklin municipal well field.

A total of 27 soil borings were made along the west and south sides of the former plating room. Samples for each boring were obtained at a 6- to 7.5-foot depth, or at the approximate depth of the former sanitary sewer line leaving the plating room area. Based on February, 1985 sampling results, soil and water samples were analyzed for priority VOCs and certain non-priority VOCs.

Samples from the six new monitoring wells (IT-1A, 1B, 2, 3, 4 and 5) were obtained by IT in May, 1985. In shallow groundwater, the priority pollutant VOCs detected were limited to 1,1-dichloroethane (DCA), toluene, TCA, and TCE. Only toluene at 9.1 µg/l, TCA at 2.2 µg/l, and xylenes at 2.2 µg/l were detected in Unit D water at a 60 foot depth at IT-1A. Wells IT-2 and IT-3, located south of the storm drain were found to contain TCE, TCA, and toluene. No VOCs were detected in IT-4, and IT-5 was found to contain toluene at only 1.6 µg/l. IT concluded that the storm drain along the south boundary of the property was acting as at least a partial groundwater intercept (Figure 6, Appendix A). Based on their 1985 data, IT produced several isoconcentration maps which show the influence of the storm and sanitary sewers on the